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Pygoderma bilabiatum.

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Pygoderma (Wagner, 1843)

Stenoderma (*Pygoderma*) Peters, 1864:83. Type species *Stenoderma* (*Pygoderma*) *microdon* Peters.

CONTEXT AND CONTENT. Order Chiroptera, Family Phyllostomidae, Subfamily Stenodermatinae, Tribe Stenodermatini. *Pygoderma* includes only one species.

Pygoderma bilabiatum (Wagner, 1843)

Ipanema Bat

Phyllostoma bilabiatum Wagner, 1843:366. Type locality "Ypanema" (Ipanema), São Paulo, Brazil.

Arctibeus leucomus Gray, 1848:57. Type locality Brazil, possibly Santa Catarina (see Carter and Dolan, 1978:134–135).

Stenoderma (*Pygoderma*) *microdon* Peters, 1864:83. Type locality Suriname.

P[ygoderma]. bilabiatum Peters, 1866:357; first use of current name combination.

CONTEXT AND CONTENT. Context same as for genus. Two subspecies of *Pygoderma bilabiatum* currently are recognized (Owen and Webster, 1983):

P. b. bilabiatum (Wagner, 1843), see above (*leucomus* Gray and *microdon* Peters are synonyms).

P. b. magna Owen and Webster, 1983:146. Type locality Ichilo, 7 km N Santa Rosa, 800 m, Santa Cruz, Bolivia.

DIAGNOSIS. The Ipanema bat is a tailless, medium-sized bat with brown pelage and a white epaulette over each shoulder (Fig. 1). The pelage on the anterior chest and shoulders is sparse, especially in males, leaving much exposed skin (Myers, 1981). *Pygoderma* differs cranially from other stenodermatines by the shape of the rostrum which is inflated and nearly cuboid; the upper incisors are unequal in size, the inner pair the larger. The basisphenoid pits are deep and well developed.

GENERAL CHARACTERS. The dorsal pelage is tricolored; the base and tip of each hair are dark brown and the middle section is pale buff. The ventral pelage is somewhat paler and uniformly grayish brown. The uropatagium is semicircularly emarginate, extends approximately to the knees, and is furred dorsally and ventrally. The calcar is small (5 to 6 mm) but distinct. The upper arm is heavily furred. The ears are rounded broadly above and the tragus is reduced (4 to 5 mm). The noseleaf is well developed and about 12.5 mm long and 8.5 mm wide. *Pygoderma* exhibits sexual dimorphism in facial glands under the jaw, lateral to the noseleaf, and surrounding the eyes; these are pronounced and larger in males, particulary the eye glands (Myers, 1981).

The skull of *Pygoderma* (Fig. 2) has a deep, parallel-sided rostrum that is nearly cuboid, and slightly less than half the length of the braincase; the palate is short and the posterior emargination is almost circular. The dental formula in most specimens is i 2/2, c 1/1, p 2/2, m 2/2, total 28; however, females sometimes have third molars on either one or both mandibles, and one of 52 females examined by Owen and Webster (1983) had a full complement of molars.

Miller's (1907) detailed description of the dentition and skull of *Pygoderma* is condensed as follows: upper incisors unequal in size, the inner the larger; lower incisors small, equal in size, in contact and forming a straight line between canines; canines low and stout, with expanded posterolingual cingulum; premolars resembling each other in size and shape, more triangular than canines; first upper molar with distinct paracone, protocone, and hypocone; second upper molar reduced in size, much smaller than M1 in bulk; first lower molar with well-developed lingual cusps, labial cusps reduced; second lower molar similar to m1 but much smaller; pterygoids short and widely spaced, hamular processes with conspicuous concave plate on medial surface extending to mandibular fossa; and auditory bullae small but high (in ventral view).

Myers (1981) found significant secondary sexual variation in several external and cranial dimensions in *Pygoderma* from Paraguay (females larger), and Owen and Webster (1983) demonstrated that secondary sexual variation in size occurs throughout the geographic range of the species. Owen and Webster (1983) also determined that most cranial measurements of specimens from Bolivia and northwestern Argentina are significantly larger than those from Paraguay and Brazil. Furthermore, sexual and geographic variation in size are independent phenomena. Individuals from Bolivia and northwestern Argentina were recognized as a subspecies (*P. b. magna*) distinct from specimens from the remainder of the range (*P. b. bilabiatum*). In addition, *P. b. magna* differs from the nominate race in that postpalatal processes are broad and poorly developed rather than narrow and elongate, the outer upper incisors are larger in bulk, and the basisphenoid pits average deeper. Selected average cranial measurements (in mm, extremes in parentheses) for three males, followed by those for eight females, of *P. b. magna* from Bolivia and northwestern Argentina (Owen and Webster, 1983) are: greatest length of skull (not including incisors), 20.8 (20.1 to 21.2), 21.6 (20.6 to 22.2); condylobasal length, 18.3 (17.8 to 18.7), 19.1 (18.1 to 19.6); breadth of postorbital constriction, 7.6 (7.5 to 7.7), 7.7 (7.4 to 8.0); zygomatic breadth (two males, seven females), 13.5 (13.4 to 13.6), 14.5 (14.2 to 15.0); length of maxillary toothrow, 5.9 (5.6 to 6.2), 6.3 (5.7 to 6.8). The same measurements for 22 males, followed by those for 43 females, of *P. b. bilabiatum* from Paraguay and Brazil (Owen and Webster, 1983)

FIGURE 1. Oblique and frontal photographs of *Pygoderma bilabiatum* from Brazil. Photographs graciously provided by Russell E. Mumford.

FIGURE 2. Dorsal, ventral, and lateral views of skull, and lateral view of lower jaw of *Pygoderma bilabiatum* (TTU 29225, female) from Igatimi, Caaquozu, Paraguay. The greatest length of skull is 21.2 mm.

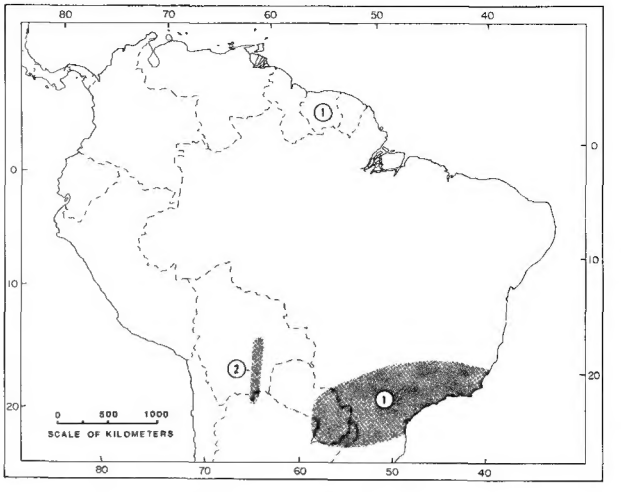

FIGURE 3. Geographic distribution of *Pygoderma bilabiatum* in South America. Subspecies are: 1, *P. b. bilabiatum*; 2, *P. b. magna*. Specific localities in Suriname are unknown.

are: 19.9 (19.2 to 20.4), 20.7 (20.1 to 21.3); 17.4 (16.7 to 18.0), 18.3 (17.7 to 18.7); 7.6 (7.2 to 7.8), 7.7 (7.2 to 8.8); 13.7 (13.2 to 14.1 in 20 males), 14.3 (13.6 to 15.3 in 39 females); 5.4 (5.2 to 5.7), 6.0 (5.7 to 6.3). Average length of forearm for 12 males, followed by those for 22 females, of *P. b. bilabiatum* from Paraguay (Myers, 1981) is 36.96 (36.2 to 38.1), 39.79 (38.9 to 41.4).

DISTRIBUTION. *Pygoderma bilabiatum* (Fig. 3) is known from Suriname, southeastern Brazil, eastern Paraguay, and northern Argentina (Jones and Carter, 1976), and Bolivia (Anderson et al., 1982; Ojeda and Barquez, 1978). Previous reports of this bat in southern Mexico are erroneous (Koopman, 1958). No fossils are known.

The status of *Stenoderma* (*Pygoderma*) *microdon* from Suriname is uncertain and has been discussed by Husson (1978) and Myers (1981). The original description by Peters (1864) was based on two males from an unspecified locality. These specimens were presumed to be lost (Husson, 1978); however, Carter and Dolan (1978) located one of the syntypes in the Zoologisches Museum der Humboldt-Universität zu Berlin. Peters did not compare these individuals with the holotype of *Pygoderma bilabiatum*, a female from Brazil. Myers (1981) reiterated that *P. microdon* was a junior synonym of *P. bilabiatum*, and that the unusual degree of sexual dimorphism probably was responsible for these male specimens receiving a separate name. Husson (1978), however, was somewhat more skeptical about the status of *Pygoderma* in Suriname, particularly because it is so poorly known from northern South America. We are aware of one other specimen of *Pygoderma* from Suriname (Owen and Webster, 1983), it too a male from an unspecified locality, although several noteworthy records of bats from Suriname appeared recently in the literature (Genoways and Williams, 1979; Genoways et al., 1981; Williams and Genoways, 1980).

FORM. Stomach morphology is similar to that of *Artibeus lituratus*, except the recurved pyloric section is somewhat longer and the cardiac caecum is more well defined (Myers, 1981). There is no colic caecum. Analysis of stomach and intestine contents suggests that *Pygoderma* feeds on rapidly digestible material such as pulpy or overripe fruit that has few fibers or seeds (Myers, 1981).

The hair structure is that of alternating and annular entire coronal or hastate coronal scales, and is similar to those of *Centurio*, *Sphaeronycteris*, and *Ametrida* (Benedict, 1957); however, Short (1978) found hair structure to be of limited taxonomic use. Wing structure of *Pygoderma bilabiatum*, *Ametrida centurio*, and *Vampyressa nymphae* is similar to that of glossophagines based on discriminant analysis (Smith and Starrett, 1979).

REPRODUCTION. Pregnant females were collected in March, July, and August in Paraguay (Myers, 1981), and August in Brazil (Peracchi and de Albuquerque, 1971); each carried a single fetus. Myers (1981) collected two females in June that were not reproductively active, and Ojeda and Barquez (1978) captured eight females during July and August in Bolivia that evinced no reproductive activity.

ECOLOGY. *Pygoderma* were captured in mist nets over trails and streams in mature tropical forests and in secondary growth that borders forests in eastern Paraguay from well after dark to about midnight when the nets were closed (Myers, 1981). Specimens from Brazil were netted around the fruit trees *Lucuma caimito* and *Miconia brasiliensis* (Peracchi and de Albuquerque, 1971).

Ipanema bats were collected from a variety of habitats in Argentina, including a small arroyo in a humid subtropical forest (Olrog, 1967), around *Celtis* plants, and in edificarian habitats (Fornes and Delpietro, 1969). *Pygoderma* is not known from the xeric Gran Chaco of northern Argentina, western Paraguay, and eastern Bolivia (Anderson et al., 1982; Myers, 1982).

Other species of bats taken with *P. b. bilabiatum* over a stream in a Paraguayan high tropical forest were *Tonatia bidens, Sturnira lilium, Artibeus lituratus, A.* sp., *Myotis ruber, M. riparius, Lasiurus borealis, L. ega, Eptesicus brasiliensis, E. diminutus, E. furinalis,* and *Molossops abrasus* (Myers et al., 1983). Other species of bats captured with *P. bilabiatum magna* in a Bolivian forest included *Carollia perspicillata, Sturnira lilium, Artibeus jamaicensis, A. lituratus,* and *Phylloderma stenops* (Bárquez and Ojeda, 1979).

GENETICS. The karyotype of *Pygoderma* (2n = 30–31, FN = 56) appears identical with that of *Ametrida, Ardops, Ariteus, Phyllops,* and *Stenoderma* but lacks the small pair of metacentric chromosomes found in *Centurio* and *Sphaeronycteris* (Myers, 1981). The X-chromosome is a medium-sized metacentric and the two Y-chromosomes are small submetacentrics or subtelocentrics (Myers, 1981).

REMARKS. *Pygoderma bilabiatum* is usually grouped with seven other stenodermatine genera (*Ametrida, Ardops, Ariteus, Centurio, Phyllops, Sphaeronycteris,* and *Stenoderma*) that possess white shoulder patches and shortened rostra (Baker, 1973; Gardner, 1977; Greenbaum et al., 1975; Myers 1981).

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